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pointed out, *Farben-empfindungs-Untersuchungen* would have been more appropriate.

H. TEN KATE.

*L'Europe Préhistorique. Principes d'Archéologie Préhistorique.* By SOPHUS MÜLLER. *Translation from the Danish by EMMANUEL PHILIPOT.* Paris: J. Lemarrie, 1907. 212 pp., 3 pl., 161 figs.

The author believes civilization was transplanted into Europe from the Orient. Not much space is devoted to the paleolithic period. France is taken as a center and as the region that shows to best advantage the various stages of paleolithic culture. The reindeer epoch is lacking in Italy as one might expect, although specimens of the Solutrean and Magdalenian types are found there.

According to Müller there was in central Europe only one great period of cold after the warm climate of the Chellean epoch when he thinks man appeared for the first time. Penck and Rutot say there were two glacial epochs after the Chellean. The temperature dropped during the Solutrean and became very cold in the Magdalenian to grow milder again until the present time. He also believes the paleolithic period to be much shorter than the time ascribed to it by many geologists, notably Penck.

Only 6000 years is given for both the paleolithic and the neolithic period in Egypt, i. e. from 10,000 B.C. to 4000 B.C. For southern Europe the first epoch of the neolithic period is supposed to have begun about 5000 B.C., and the second epoch of the neolithic about 4000 B.C. These epochs began about 1000 years later, respectively, in Scandinavia.

Copper was employed first in the Orient. It was known in Egypt as early as the first dynasty, about 5000 B.C. But its use was restricted, and stone implements, particularly as cutting tools, were very generally employed until 3000 B.C. The Egyptian influence on the pre-Mycenæan civilization is noted and the characteristic stone burial cists of that epoch are described.

The beginning of the proto-Mycenæan epoch is placed at about 2000 B.C. With it appeared pottery of a new and much improved order. The paste was fine, the modeling excellent, and the ornaments in color. This epoch is known in Sicily, southern Italy, and Sardinia by the sepulture *a forno*, so-named because of its resemblance to an oven. Tombs of this type were communal and placed by preference in the flank of an escarpment. There also existed in these regions the dolmen proper. The two types of communal tomb are genetically related to the pre-

Mycenæan stone cist. Strange to say the dolmens spread to western Europe, Great Britain, and Scandinavia, but did not replace in central Europe the ancient custom of individual burials.

The epoch of transition from the neolithic to the bronze age is called the "eneolithic" and corresponds to the Mycenæan. It was preëminently the age of the poniard, the spear and the lance coming later. Properly speaking there was no eneolithic epoch in Scandinavia, although this epoch had a profound influence on northern civilization. For example, the flat-poled flint ax so characteristic of the north, and which is more recent than the flint ax with pointed pole, seems to have been copied after the copper axes of southern Europe at a time when metal was rare in the north and flint was plentiful. The dolmen also that characterized the eneolithic of the Mediterranean countries was introduced into Scandinavia during the first part of the neolithic period. The flint mines of Sicily and of Belgium are of the same type; but the former were worked by an eneolithic people and the process was borrowed by the races of Belgium before they emerged from a purely neolithic age. Not only flint but also obsidian remained an article of merchandise well into the bronze age. Obsidian is easily traceable to its original sources in Italy, Sicily, and certain islands of the Ægean sea. The finest example of the diffusion of flint from a single source is that of the Grand-Pressigny (Indre-et-Loire) which is recognized by its color and has been traced not only all over France but also into neighboring countries.

Müller enumerates the fundamental principles that should guide one in studying the relations of the central to peripheral civilizations as follows:

1. Southern Europe represented the active productive civilizing force, while the countries to the north being peripheral played a receptive rôle.

2. The civilization of the south was transmitted only in abridged and modified form, subject in the more remote regions to a further development along entirely new and original lines.

3. Types of tools, weapons, apparel, and ornaments may persist with but little change for a considerable lapse of time.

4. Elements which along the Mediterranean belonged to successive periods may become contemporaneous in the peripheral regions.

These principles were understood by the men who founded the science of prehistoric archeology during the last century. Müller believes that Montelius would make the prehistoric epochs of the peripheral region follow too closely those of the center. He also does not agree with

Penka that Scandinavia itself was a center, a source of civilization ; nor with Reinach who regards Europe as independent from the Orient.

A chapter is devoted to the closing epoch of the neolithic period in the north, where stone art reached its apogee. The finest examples are the flint poniards that are so common in the dolmens of this epoch and that have their prototype in the bronze age poniards of southern Europe. No such development of the later neolithic is to be found in the countries bordering on the English Channel because the development in stone art was cut short by the introduction of metal at an earlier period.

Considerable space is given to the Mycenæan civilization which reached its zenith about 1500 B.C. It is pointed out that the dwellings of the period were not of a permanent character, while the houses of the dead were built for eternity. "The tombs with cupola of Greece and the giant dolmens of Denmark are derived from the same conceptions of life and death and are fundamentally one and the same thing. Nothing better than these monuments could reveal to us the unity of European civilization, and at the same time nothing shows more clearly the differences between the south and the north during the second millennium B.C."

Iron was known in Greece toward the close of the Mycenæan epoch, but was employed only for small objects. Bronze was the metal in general use. One could therefore speak of this epoch as the bronze age. But Müller prefers Mycenæan for Greece and bronze age for the rest of Europe, where the civilization was much less rich though derived from the same source, i. e. from the Orient through Greece. The typical weapon of the bronze age was the poniard. The sword came later, not before the close of the period. The fibula made its appearance here and was the point of departure for the development of feminine ornament during the epochs to follow, and after having fallen into disuse for ages has only recently reappeared in its original form but with another name—safety-pin.

One remarkable prehistoric phenomenon is the plentitude and decorative richness of the bronze age in Scandinavia and the mediocrity of the same civilization in western Europe. The latter was received indirectly by way of Italy while the former came directly from the Orient. In all western Europe from Spain to Great Britain there is not found a single fibula of the bronze age type. This absence joined with that of the spiral ornamentation is proof that the Occident was farther removed from Greek influences than were the Baltic countries. The Mycenæan culture is supposed to have reached the north by way of the Adriatic, western Hungary, and Bavaria.

The lake dwellings form an interesting phase of the prehistoric in Europe. They are grouped about the Alps: Switzerland, southern Germany, Savoy, northern Italy, and Austria (including Croatia and Hungary). The structures were quadrilateral, a fact suggesting Mycenæan influence. At least 200 village sites have been discovered in Switzerland alone since the winter of 1853-54. These belong to different epochs, the later neolithic, bronze, and iron ages respectively. Some in fact were inhabited during successive ages. The purely bronze age stations are found farther in the water than are the purely neolithic.

Just as curious in their way as the lake-dwellings are the terramaras of northern Italy. This is a corruption of "terrarnarna," a name which was given to the low flat hillocks in the valley of the Po from which a fertilizing earth has been extracted since early in the eighteenth century, long before the real significance of the deposits was known. They owed their existence to pile dwellings built on land but protected by water artificially regulated. Over a hundred have been explored thus far. The finest one is at Castione, northwest of Parma. Its present height above the plain is only three meters, but the thickness of the deposit is five and a half meters. Three successive villages had stood on the spot, the first two having been destroyed by fire. The terramaras represent preeminently a bronze age culture that came from Greece by the way of southern Italy.

The Dipylon epoch in Greece witnessed the appearance of a special geometric style of decorative art, consisting of straight lines and meanders. This art, developed about 1000 B.C., was not original and spontaneous. Although it consisted of old elements, these were brought together to form a new and harmonious ensemble. The same motives were in use a thousand years later in Scandinavia. Figurines of the horse characterize this epoch. Gold and silver were scarce. The use of iron became general.

The Dipylon epoch gave Italy its first iron age, which in its turn became the point of departure for a new period of civilization in the other countries of Europe. This period in Etruria was characterized by cinerary urns of coarse paste, made without the use of the wheel and with incised instead of painted ornaments. The motives, however, recall those of the Dipylon epoch in Greece—zigzags, meanders, etc. All sorts of small objects were placed with the dead—among others the bronze razor with a single edge in place of the earlier two-edge razor; also, a new type of fibula with highly arched body instead of the Mycenæan type. There appeared at this time a sword with a hilt terminated

by two branches — a type destined to play an important rôle north of the Alps as far as Scandinavia.

The first iron age in Italy is generally called the first Villanova epoch (1000 B.C.). It is also called the epoch of well-shaped tombs, *tomba a pozzo*. The second epoch of Villanova reveals an increasing Greek influence accompanying a local original development. Incineration gave place by degrees to interment; and ancient linear ornament was succeeded by life forms repeated in series to form zones, recalling the Dipylon style. Much progress was shown in the construction of tombs, as witness the celebrated tomb of Regulini-Galassi discovered in 1836 at Cervetri. After the fall of Carthage, Greek influence practically superseded the Oriental in Etruria, after having given to Tuscany its money, alphabet, architecture, industry, and divinities. Hellenic civilization crossed the Appennines and invaded the Po valley. The best evidence of this is afforded by the Certosa cemetery at Bologna.

The first iron age of central Europe had its sources in the recent Villanovan civilization of northern Italy. It is commonly called the Hallstatt epoch from the village of Hallstatt in Austria near which was discovered a prehistoric cemetery representing the entire period. But the Hallstatt civilization was as restricted in area as it was distinctive in character. This limited zone became a center of civilization for the contiguous countries, which for the greater part were still in the bronze age. This was particularly true of Hungary, Scandinavia, and Switzerland.

The second iron age, or epoch of la Tène, dating from about 500 B.C., is better known than the Hallstatt epoch. We know that toward the close of the latter period there arose in what now corresponds to France and Germany a special civilization which reached its zenith during the fourth century B.C. There was created at the commencement of the period a decorative Celtic style of such value and refinement as to be considered not only original but also national. Yet in the last analysis these motives are derived from the palmette and classic volute. The Celtic period may be divided into two epochs: an older corresponding to the Gallic domination and a younger represented by the discoveries at la Tène on Lake Neuchâtel. The two halves of the Celtic period were of unequal merit, the latter representing an epoch of decadence. The period left its traces in Scandinavia, some of the specimens being of excellent workmanship. In both Scandinavia and Great Britain the bronze age was prolonged into the epoch of la Tène.

The movement of civilization in western Europe during the epoch of la Tène had its counterpart in the region to the north of the Black sea where

the cemeteries of the time have furnished such a surprising quantity of beautiful objects of art, particularly gold ornaments. This rich period may be placed between the fifth and the second centuries, B.C. As one penetrates farther into the interior of Russia the indigenous Scythian art makes itself felt more and more. It is characterized by animal figurines or simply the heads of animals used ornamentally. A good part of Scythian art and industry came direct from Asia and eventually spread its influence over northern Russia and into Hungary.

Rarely has a victory had for the history of civilization such vast consequences as the victory of Alesia, 52 B.C., by which Cæsar vanquished the last armies of Gaul. After this the frontier of the prehistoric domain retreated rapidly toward the north. The Germanic world came into direct contact for the first time with the classic civilization of the south.

During the epoch of invasions there was a marked development of provincial industry. The Roman bronze vases, for example, were no longer made in the south for exportation, but in the region of the Rhine and in France. The sixteen beautiful pails from the cemetery of Hemmoor near Hanover are examples. One often finds Roman motives in use, but under forms scarcely recognizable. Among the most remarkable specimens of this kind belonging to the epoch of invasions must be classed the celebrated golden horns of Gallehus in Schleswig. To this period also belongs the Roman silver service found at Hildesheim.

Differences are pointed out between the recent Celtic civilization of Germany and that of Great Britain and Ireland. At the time the Romans gained a foothold in England local Celtic art had reached a high stage of originality and development. Celtic elements were even borrowed by the Romans, whose political domination over the land did not exercise any marked influence on the national art, which continued without interruption, particularly in Scotland and Ireland, and which culminated in the heroic and legendary Celtic period of the first 500 years A. D.

The last two chapters are devoted to the closing epochs of prehistoric times in Scandinavia (500 to 1000 A. D.), and to Finland and the Slavic countries.

Müller, who is director of the National Museum of Danish Antiquities, has been known for years as a gifted writer on northern archeology. The present volume maintains the high standard the author set for himself in earlier works. Each chapter is accompanied by a selected list of references. One misses, however, an index, which is all but indispensable in a work so important as this. The next general work on prehistoric Europe will in all probability devote more space to the contributions of such

men as Rutot and Penck; those of the former on pre-Chellean industry and those of the latter on the antiquity of man from the standpoint of glacial geology.

GEORGE GRANT MACCURDY.

*Prehistoric Japan.* NEIL GORDON MUNRO. Yokohama: 1908. 8°, xvii, 705 pp.

A considerable part of what has been written on the prehistoric archeology of Japan is in English, but the articles are so scattered through periodical publications, and the books, mostly printed in Japan, have been so difficult of access, that the material is almost unknown. How will a student procure a copy of H. von Siebold's *Notes on Japanese Archaeology*, or of Morse's *Shell Heaps of Omori*, or of Kanda's *Notes on Ancient Stone Implements, etc., of Japan*? Let one, who thinks he knows, try. Hence we welcome this great work by Munro, which not only brings together all that his predecessors — Morse, Milne, von Siebold, Kanda, Hitchcock, Gowland — have said, but adds a wealth of new materials based on the author's personal field-work, museum study, and literary research. Munro draws largely on the by-no-means insignificant Japanese literature of the subject, a source absolutely inaccessible to most students. The result of his labors is this bulky volume, quadrupling our knowledge of its field. The work is abundantly illustrated with more than four hundred engravings, for the greater part half-tones. The author had free access to both public and private collections, and among his illustrations many choice or unique specimens are represented. Munro recognizes two clearly-defined cultures in Japan, with traces of a third. The earlier, "Primitive Culture," is "attested by the existence of over four thousand residential sites and shell-heaps." Metallic objects are absent; implements and weapons of chipped and polished stone, coarse hand-shaped pottery, objects of horn and bone, and heaps of refuse remain to represent it to us. The second, "Yamato Culture," was marked by the erection of sepulchral chambers, dolmens, etc., and by the excavation of caves; the relics do not include stone *weapons*, although there are curious stone copies of sheath-knives and swords, usually of diminutive size, and occasional stone copies of bronze arrowheads; some problematical *implements* of polished stone occur, as mortars and other utensils, and various forms of stone *ornaments*; arrowheads, jingle-bells, and mirrors of bronze, copper objects often plated with gold or silver, swords, horse-trappings and other iron articles and wheel-turned pottery, characterize this culture. Suggestions of a third, "Intermediate Culture," are given by objects